COMPARATIVE ANALYSIS OF WATER LEAK DETECTION SYSTEMS AND METHODOLOGIES

Pedro Rosas Quiterio*, Florencio Sánchez Silva, Ignacio Carvajal Mariscal, Jesús Alberto Meda Campaña

Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica, Av. IPN, Edif. 5, Third Floor, SEPI ESIME Zac, Col. Lindavista, C.P. 07738, D.F., México

Abstract

In this paper the problem of water leakage is shown widely as well as the impact in Mexico resources, which is reflected in a huge economic and environmental impact. Also several leak detection systems and methodologies are presented in a comparative analysis that was carried out in order to provide the reader a clear idea of how the operation of the systems are affected by means of various factors which in turn leads the reader to know about the requirements of systems and methodologies and addresses quantitatively their advantages and disadvantages. Finally the comparative analysis, leads the authors to develop a leak detection system based on pressure gradient according to the analyzed features, capabilities and needs.

Key words: detection, leak, location, methodologies, systems

Received: August, 2013; Revised final: April, 2014; Accepted: April, 2014

* Author to whom all correspondence should be addressed: e-mail: riddle_ESIME@hotmail.com; Phone: +(52)55 53563354; Fax: +(52) 55 5729 6000 Ext: 54754